

SEQUENCE LISTING

(1) GENERAL INFORMATION

(i) APPLICANT: Koichi, Ishiguro  
Kazuki, Sato  
Jun-Mi, Park  
Tsuneko, Uchida  
Kazutomo Imahori

(ii) TITLE OF INVENTION: ANTI-PHOSPHORYLATED TAU PROTEIN ANTIBODY AND  
METHOD FOR DETECTING ALZHEIMER'S DISEASE WITH THE USE OF THE SAME

(iii) NUMBER OF SEQUENCES: 22

(iv) COMPUTER READABLE FORM:

(A) MEDIUM TYPE: Floppy disk  
(B) COMPUTER: IBM PC compatible  
(C) OPERATING SYSTEM: PC-DOS/MS-DOS  
(D) SOFTWARE: PatentIn Release #1.0, Version #1.30 (EPO)

(vi) CURRENT APPLICATION DATA

(A) APPLICATION NUMBER:  
(B) FILING DATE:  
(C) CLASSIFICATION:

(vi) PRIOR APPLICATION DATA

(A) APPLICATION NUMBER: JP 8/56090  
(B) FILING DATE: 13-MAR-1996

(2) INFORMATION FOR SEQ ID NO: 1:

(i) SEQUENCE CHARACTERISTICS:

(A) SEQUENCE LENGTH: 441 amino acids  
(B) SEQUENCE TYPE: amino acid  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1:

Met Ala Glu Pro Arg Gln Glu Phe Glu Val Met Glu Asp His Ala Gly  
1 5 10 15  
Gln Asp Thr Tyr Gly Leu Gly Asp Arg Lys Asp Gln Gly Gly Tyr Thr  
20 25 30  
Met His Gln Glu Gly Asp Thr Asp Ala Gly Leu Lys Glu Ser Pro Leu

35				40				45							
Gln	Thr	Pro	Thr	Glu	Asp	Gly	Ser	Glu	Glu	Pro	Gly	Ser	Glu	Thr	Ser
50				55				60							
Asp	Ala	Lys	Ser	Thr	Pro	Thr	Ala	Glu	Asp	Val	Thr	Ala	Pro	Leu	Val
65				70				75				80			
Asp	Glu	Gly	Ala	Pro	Gly	Lys	Gln	Ala	Ala	Ala	Gln	Pro	His	Thr	Glu
85				90				95							
Ile	Pro	Glu	Gly	Thr	Thr	Ala	Glu	Glu	Ala	Gly	Ile	Gly	Asp	Thr	Pro
100				105				110							
Ser	Leu	Glu	Asp	Glu	Ala	Ala	Gly	His	Val	Thr	Gln	Ala	Arg	Met	Val
115				120				125							
Ser	Lys	Ser	Lys	Asp	Gly	Thr	Gly	Ser	Asp	Asp	Lys	Lys	Ala	Lys	Gly
130				135				140							
Ala	Asp	Gly	Lys	Thr	Lys	Ile	Ala	Thr	Pro	Arg	Gly	Ala	Ala	Pro	Pro
145				150				155				160			
Gly	Gln	Lys	Gly	Gln	Ala	Asn	Ala	Thr	Arg	Ile	Pro	Ala	Lys	Thr	Pro
165				170				175							
Pro	Ala	Pro	Lys	Thr	Pro	Pro	Ser	Ser	Gly	Glu	Pro	Pro	Lys	Ser	Gly
180				185				190							
Asp	Arg	Ser	Gly	Tyr	Ser	Ser	Pro	Gly	Ser	Pro	Gly	Thr	Pro	Gly	Ser
195				200				205							
Arg	Ser	Arg	Thr	Pro	Ser	Leu	Pro	Thr	Pro	Pro	Thr	Arg	Glu	Pro	Lys
210				215				220							
Lys	Val	Ala	Val	Val	Arg	Thr	Pro	Pro	Lys	Ser	Pro	Ser	Ser	Ala	Lys
225				230				235				240			
Ser	Arg	Leu	Gln	Thr	Ala	Pro	Val	Pro	Met	Pro	Asp	Leu	Lys	Asn	Val
245				250				255							
Lys	Ser	Lys	Ile	Gly	Ser	Thr	Glu	Asn	Leu	Lys	His	Gln	Pro	Gly	Gly
260				265				270							
Gly	Lys	Val	Gln	Ile	Ile	Asn	Lys	Lys	Leu	Asp	Leu	Ser	Asn	Val	Gln
275				280				285							
Ser	Lys	Cys	Gly	Ser	Lys	Asp	Asn	Ile	Lys	His	Val	Pro	Gly	Gly	Gly
290				295				300							
Ser	Val	Gln	Ile	Val	Tyr	Lys	Pro	Val	Asp	Leu	Ser	Lys	Val	Thr	Ser
305				310				315				320			
Lys	Cys	Gly	Ser	Leu	Gly	Asn	Ile	His	His	Lys	Pro	Gly	Gly	Gly	Gln
325				330				335							
Val	Glu	Val	Lys	Ser	Glu	Lys	Leu	Asp	Phe	Lys	Asp	Arg	Val	Gln	Ser
340				345				350							
Lys	Ile	Gly	Ser	Leu	Asp	Asn	Ile	Thr	His	Val	Pro	Gly	Gly	Gly	Asn

355	360	365
Lys Lys Ile Glu Thr His Lys Leu Thr Phe Arg Glu Asn Ala Lys Ala		
370	375	380
Lys Thr Asp His Gly Ala Glu Ile Val Tyr Lys Ser Pro Val Val Ser		
385	390	395
Gly Asp Thr Ser Pro Arg His Leu Ser Asn Val Ser Ser Thr Gly Ser		
405	410	415
Ile Asp Met Val Asp Ser Pro Gln Leu Ala Thr Leu Ala Asp Glu Val		
420	425	430
Ser Ala Ser Leu Ala Lys Gln Gly Leu		
435	440	

(2) INFORMATION FOR SEQ ID NO: 2:

(i) SEQUENCE CHARACTERISTICS:

- (A) SEQUENCE LENGTH: 12 amino acids
- (B) SEQUENCE TYPE: amino acid
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

- (A) NAME/KEY :
- (B) LOCATION : 6
- (D) OTHER INFORMATION:Xaa=phosphoserine

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 2:

Lys	Ser	Gly	Tyr	Ser	Xaa	Pro	Gly	Ser	Pro	Gly	Thr
1				5						10	

(2) INFORMATION FOR SEQ ID NO: 3:

(i) SEQUENCE CHARACTERISTICS:

- (A) SEQUENCE LENGTH: 13 amino acids
- (B) SEQUENCE TYPE: amino acid
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

- (A) NAME/KEY :
- (B) LOCATION : 6
- (D) OTHER INFORMATION:Xaa=phosphoserine

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 3:

Lys	Ser	Ser	Pro	Gly	Xaa	Pro	Gly	Thr	Pro	Gly	Ser	Arg
1				5						10		

(2) INFORMATION FOR SEQ ID NO: 4:

(i) SEQUENCE CHARACTERISTICS:

(A) SEQUENCE LENGTH: 12 amino acids

(B) SEQUENCE TYPE: amino acid

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY :

(B) LOCATION : 7

(D) OTHER INFORMATION:Xaa=phosphothreonine

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 4:

Cys Pro Gly Ser Pro Gly Xaa Pro Gly Ser Arg Ser  
1 5 10

(2) INFORMATION FOR SEQ ID NO: 5:

(i) SEQUENCE CHARACTERISTICS:

(A) SEQUENCE LENGTH: 13 amino acids

(B) SEQUENCE TYPE: amino acid

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY :

(B) LOCATION : 6

(D) OTHER INFORMATION:Xaa=phosphoserine

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 5:

Lys Ser Xaa Pro Gly Xaa Pro Gly Thr Pro Gly Ser Arg  
1 5 10

(2) INFORMATION FOR SEQ ID NO: 6:

(i) SEQUENCE CHARACTERISTICS:

(A) SEQUENCE LENGTH: 14 amino acids

(B) SEQUENCE TYPE: amino acid

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY :

(B) LOCATION : 7

(D) OTHER INFORMATION:Xaa=phosphothreonine

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 6:

Cys Val Ala Val Val Arg Xaa Pro Pro Lys Ser Pro Ser Ser

1 5 10

(2) INFORMATION FOR SEQ ID NO: 7:

(i) SEQUENCE CHARACTERISTICS:

(A) SEQUENCE LENGTH: 12 amino acids

(B) SEQUENCE TYPE: amino acid

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY :

(B) LOCATION : 7

(D) OTHER INFORMATION:Xaa=phosphoserine

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 7:

Cys Arg Thr Pro Pro Lys Xaa Pro Ser Ser Ala Lys

1 5 10

(2) INFORMATION FOR SEQ ID NO: 8:

(i) SEQUENCE CHARACTERISTICS:

(A) SEQUENCE LENGTH: 12 amino acids

(B) SEQUENCE TYPE: amino acid

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY :

(B) LOCATION : 7

(D) OTHER INFORMATION:Xaa=phosphoserine

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 8:

Cys Arg Thr Pro Pro Lys Xaa Pro Ser Ala Ser Lys

1 5 10

(2) INFORMATION FOR SEQ ID NO: 9:

(i) SEQUENCE CHARACTERISTICS:

(A) SEQUENCE LENGTH: 12 amino acids

(B) SEQUENCE TYPE: amino acid

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY :

(B) LOCATION : 3

(D) OTHER INFORMATION:Xaa=phosphothreonine

(ix) FEATURE:

(A) NAME/KEY :

(B) LOCATION : 7

(D) OTHER INFORMATION:Xaa=phosphoserine

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 9:

Cys Arg Xaa Pro Pro Lys Xaa Pro Ser Ser Ala Lys  
1 5 10

(2) INFORMATION FOR SEQ ID NO: 10:

(i) SEQUENCE CHARACTERISTICS:

(A) SEQUENCE LENGTH: 12 amino acids

(B) SEQUENCE TYPE: amino acid

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY :

(B) LOCATION : 7

(D) OTHER INFORMATION:Xaa=phosphoserine

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 10:

Cys Lys Ser Lys Ile Gly Xaa Thr Glu Asn Leu Lys  
1 5 10

(2) INFORMATION FOR SEQ ID NO: 11:

(i) SEQUENCE CHARACTERISTICS:

(A) SEQUENCE LENGTH: 12 amino acids

(B) SEQUENCE TYPE: amino acid

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY :

(B) LOCATION : 7

(D) OTHER INFORMATION:Xaa=phosphoserine

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 11:

Cys Glu Ile Val Tyr Lys Xaa Pro Val Val Ser Gly  
1 5 10

(2) INFORMATION FOR SEQ ID NO: 12:

(i) SEQUENCE CHARACTERISTICS:

(A) SEQUENCE LENGTH: 12 amino acids

(B) SEQUENCE TYPE: amino acid

(D) TOPOLOGY: linear  
(ii) MOLECULE TYPE: peptide  
(ix) FEATURE:  
    (A) NAME/KEY :  
    (B) LOCATION : 7  
    (D) OTHER INFORMATION:Xaa=phosphoserine  
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 12:  
Cys Val Ser Gly Asp Thr Xaa Pro Arg His Leu Ser  
1                    5                    10

(2) INFORMATION FOR SEQ ID NO: 13:  
    (i) SEQUENCE CHARACTERISTICS:  
        (A) SEQUENCE LENGTH: 12 amino acids  
        (B) SEQUENCE TYPE: amino acid  
        (D) TOPOLOGY: linear  
    (ii) MOLECULE TYPE: peptide  
    (ix) FEATURE:  
        (A) NAME/KEY :  
        (B) LOCATION : 7  
        (D) OTHER INFORMATION:Xaa=phosphoserine  
    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 13:  
Lys Leu Ser Asn Val Ser Xaa Thr Gly Ser Ile Asp  
1                    5                    10

(2) INFORMATION FOR SEQ ID NO: 14:  
    (i) SEQUENCE CHARACTERISTICS:  
        (A) SEQUENCE LENGTH: 12 amino acids  
        (B) SEQUENCE TYPE: amino acid  
        (D) TOPOLOGY: linear  
    (ii) MOLECULE TYPE: peptide  
    (ix) FEATURE:  
        (A) NAME/KEY :  
        (B) LOCATION : 7  
        (D) OTHER INFORMATION:Xaa=phosphoserine  
    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 14:  
Cys Ile Asp Met Val Asp Xaa Pro Gln Leu Ala Thr  
1                    5                    10

(2) INFORMATION FOR SEQ ID NO: 15:  
    (i) SEQUENCE CHARACTERISTICS:

(A) SEQUENCE LENGTH: 12 amino acids  
(B) SEQUENCE TYPE: amino acid  
(D) TOPOLOGY: linear  
(ii) MOLECULE TYPE: peptide  
(ix) FEATURE:  
    (A) NAME/KEY :  
    (B) LOCATION : 6  
    (D) OTHER INFORMATION:Xaa=phosphoserine  
(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 15:  
Lys Leu Ser Asn Val Xaa Ser Thr Gly Ser Ile Asp  
1                    5                    10

(2) INFORMATION FOR SEQ ID NO: 16:  
    (i) SEQUENCE CHARACTERISTICS:  
        (A) SEQUENCE LENGTH: 12 amino acids  
        (B) SEQUENCE TYPE: amino acid  
        (D) TOPOLOGY: linear  
    (ii) MOLECULE TYPE: peptide  
    (ix) FEATURE:  
        (A) NAME/KEY :  
        (B) LOCATION : 6  
        (D) OTHER INFORMATION:Xaa=phosphoserine  
    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 16:  
Lys Leu Ser Asn Val Xaa Xaa Thr Gly Ser Ile Asp  
1                    5                    10

(2) INFORMATION FOR SEQ ID NO: 17:  
    (i) SEQUENCE CHARACTERISTICS:  
        (A) SEQUENCE LENGTH: 17 amino acids  
        (B) SEQUENCE TYPE: amino acid  
        (D) TOPOLOGY: linear  
    (ii) MOLECULE TYPE: peptide  
    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 17:  
Ser Pro Gln Leu Ala Thr Leu Ala Asp Glu Val Ser Ala Ser Leu Ala Lys  
1                    5                    10                    15



(2) INFORMATION FOR SEQ ID NO: 18:

(i) SEQUENCE CHARACTERISTICS:

- (A) SEQUENCE LENGTH: 12 amino acids
- (B) SEQUENCE TYPE: amino acid
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 18:

Ala Glu Pro Arg Gln Glu Phe Glu Val Met Glu Cys  
1 5 10

(2) INFORMATION FOR SEQ ID NO: 19:

(i) SEQUENCE CHARACTERISTICS:

- (A) SEQUENCE LENGTH: 15 amino acids
- (B) SEQUENCE TYPE: amino acid
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 19:

Val Ala Val Val Arg Thr Pro Pro Lys Ser Pro Ser Ser Ala Lys  
1 5 10 15

(2) INFORMATION FOR SEQ ID NO: 20:

(i) SEQUENCE CHARACTERISTICS:

- (A) SEQUENCE LENGTH: 34 amino acids
- (B) SEQUENCE TYPE: amino acid
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 20:

Ser Gly Asp Arg Ser Gly Tyr Ser Ser Pro Gly Ser Pro Gly Thr Pro  
1 5 10 15  
Gly Ser Arg Ser Arg Thr Pro Ser Leu Pro Thr Pro Pro Thr Arg Glu  
20 25 30  
Pro Lys

(2) INFORMATION FOR SEQ ID NO: 21:

(i) SEQUENCE CHARACTERISTICS:

- (A) SEQUENCE LENGTH: 55 amino acids
- (B) SEQUENCE TYPE: amino acid
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 21:

Ala Lys Thr Asp His Gly Ala Glu Ile Val Tyr Lys Ser Pro Val Val  
1 5 10 15  
Ser Gly Asp Thr Ser Pro Arg His Leu Ser Asn Val Ser Ser Thr Gly  
20 25 30  
Ser Ile Asp Met Val Asp Ser Pro Gln Leu Ala Thr Leu Ala Asp Glu  
35 40 45  
Val Ser Ala Ser Leu Ala Lys  
50 55

(2) INFORMATION FOR SEQ ID NO: 22:

(i) SEQUENCE CHARACTERISTICS:

(A) SEQUENCE LENGTH: 12 amino acids

(B) SEQUENCE TYPE: amino acid

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 22:

Cys Lys Ser Lys Ile Gly Ser Thr Glu Asn Leu Lys  
1 5 10